CLAIMS

We claim:

1. A method comprising:
   a) providing;
      i) at least one leukocyte, and
      ii) a composition comprising a human S100A8 or S100A9 protein; and
   b) contacting said leukocyte with said composition under conditions suitable for repelling said leukocyte.

2. The method of Claim 1, wherein said leukocyte is selected from the group consisting of a monocyte, a neutrophil and an eosinophil.

3. The method of Claim 1, wherein said leukocyte expresses at least one chemokine receptor selected from the group consisting of CCR1, CCR3 and CCR5.

4. The method of Claim 1, wherein said protein comprises at least one mutation inhibiting post-translational modification of said protein.

5. The method of Claim 4, wherein said inhibiting post-translational modification comprises conferring oxidation resistance to said protein.

6. The method of Claim 4, wherein said mutation further prevents dimerization of said protein.

7. A method comprising:

a) providing;

i) a subject with one or more symptoms of inflammation; and

ii) a composition comprising a human S100A8 or S100A9 protein; and

b) administering said composition to said subject under conditions such that at least one of said symptoms is reduced or eliminated.

8. The method of Claim 7, wherein said subject has an inflammatory disorder selected from the group consisting of allergy, asthma, artherosclerosis, atopic dermatitis, autoimmune disease, cystic fibrosis, infection, injury, meningitis, psoriasis, and transplant rejection.

9. The method of Claim 8, wherein said infection is with a microorganism selected from the group consisting of *Candida albicans, Pseudomonas aeriginosa*, human papillomavirus-16, and human immunodeficiency virus type 1.

10. The method of Claim 7, wherein said one or more symptoms is selected from the group consisting of pain, heat, redness and swelling.

11. The method of Claim 10, wherein said swelling comprises a leukocyte infiltrate.

12. The method of Claim 11, wherein said leukocyte infiltrate comprises a cell selected from the group consisting of a monocyte, a neutrophil and an eosinophil.

13. The method of Claim 7, wherein said protein comprises at least one mutation inhibiting post-translational modification of said protein.

14. The method of Claim 13, wherein said inhibiting post-translational modification comprises conferring oxidation resistance to said protein.

15. The method of Claim 13, wherein said mutation further prevents dimerization of said protein.

16. A composition comprising a nucleic acid sequence encoding a mutant human S100A8 protein that is at least 70% identical to SEQ ID NO:2 or a mutant human S100A9 protein that is at least 70 % identical to SEQ ID NO:4, wherein said nucleic acid sequence comprises at least one mutation inhibiting post-translational modification of said protein.

17. The composition of Claim 16, wherein said inhibiting post-translational modification comprises conferring oxidation resistance to said protein.

18. The composition of Claim 16, wherein said mutation further prevents dimerization of said protein.

19. The composition of Claim 16, wherein said mutation results in an amino acid substitution of a cysteine, a lysine or a methionine residue, and wherein said mutation does not destroy leukocyte-repellent activity of said protein.

20. The composition of Claim 19, wherein said amino acid substitution comprises a replacement of Cysteine at residue 42 with an Alanine in said human S100A8 protein.

21. The composition of Claim 19, wherein said amino acid substitution comprises a replacement of Methionine at one or more of residue 61, residue 81, and residue 83, with an Alanine in said human S100A9 protein.

22. A composition comprising a mutant human S100A8 protein that is at least 70% identical to SEQ ID NO:2 or a mutant human S100A9 protein that is at least 70% identical to SEQ ID NO:4, wherein said protein comprises at least one mutation inhibiting post-translational modification of said protein.

23. The composition of Claim 22, wherein said inhibiting post-translational modification comprises conferring oxidation resistance to said protein.

24. The composition of Claim 22, wherein said mutation further prevents dimerization of said protein.

25. The composition of Claim 22, wherein said mutation results in an amino acid substitution of a cysteine, a lysine or a methionine residue, and wherein said mutation does not destroy leukocyte-repellent activity of said protein.

26. The composition of Claim 25, wherein said amino acid substitution comprises a replacement of Cysteine at residue 42 with an Alanine in said human S100A8 protein.

27. The composition of Claim 25, wherein said amino acid substitution comprises a replacement of Methionine at one or more of residue 61, residue 81, and residue 83, with an Alanine in said human S100A9 protein.